

Guidelines for Submission of Purified Whole Protein Samples for MALDI & ESI MS

In order to submit a liquid or dry sample of a purified protein for MS analysis you should first run it out on a gel to confirm the presence of a protein of the expected size. On the same gel, in order to accurately estimate the protein concentration, you'll need to run known quantities of at least two concentrations of unstained standards as described in the MS sample preparation sheet. After confirming that the sample contains a protein at the expected size with minimal contamination by other proteins, you can submit a liquid sample corresponding to the amount run on the gel at amount determined by equivalent staining characteristics with standards at the appropriate size and quantity (at least 10ul @ 2-5 pmoles/ul). If submitting a sample containing buffer salts and or detergents please submit 50ul @ at least 10 – 20 pmoles/ul to allow for losses during cleanup (an extra charge applies to this service). Please submit a copy of a photo of your gel.

Buffers

Ionic detergents (incl. SDS and Triton X & many others) are not compatible with MS. If your sample requires detergent for solubility there are a couple of "MS Friendly" choices such as 1% octylglucopyranoside as well as kits from Invitrogen (MS10001). Pure samples in up to 50% ACN 0.1% TFA usually provide the best data. Multiple component samples will compete for protons in the ionization process. The components with the highest concentration will give strongest signal; and the components with low concentration will give weak signals. Salts and buffers are, in general, detrimental to MS analysis. Salts normally form adduct peaks which compete with the molecular ion peaks and broaden the overall signal (especially for protein analysis). ESI-MS is sensitive to salts and buffers resulting in signal suppression. Less than 1mM salt buffers are recommended although higher salt concentrations may be tolerated. Ammonium acetate usually do not affect the signal greatly below 20 mM. Tris is generally ok up to 10 mM, while sodium and potassium can be a real problem above 5mM. Pierce and Millipore have a wide assortments of products for dialysis and general sample cleanup. We will charge extra at rate of \$75/hr plus materials for this service.

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